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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,131	04/05/2001	Graham Mensa-Wilmot	05516.088001	4894

22511 7590 09/24/2003
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EXAMINER

PETRAVICK, MEREDITH C

ART UNIT	PAPER NUMBER
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3671

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/827,131

Applicant(s)

MENSA-WILMOT ET AL.

Examiner

Meredith C Petravick

Art Unit

3671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 10/10/02 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7-8 and 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7 and 15 state that a cylindrical cutting element has a substantially elliptical shape. A single cutting element cannot be both cylindrical and have a substantially elliptical shape.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1, 5-8 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Sinor 6,302,223 B1.

Sinor discloses a drill bit comprising:

Art Unit: 3671

- a bit body (12) with blades (14)
- a cylindrical (Fig. 4 A) polycrystalline diamond (Column 7, line 2) compact cutting element (160) including a substrate and polycrystalline diamond layer (Fig. 4).

The interface between the substrate and polycrystalline diamond layer is non-planar (Fig.4). The polycrystalline diamond compact cutting elements “of relatively large diameter, such as 19 mm (\approx 0.75 inch) or 25 mm (\approx 1 inch).” (Column 7, line 14-16). This broad statement discloses the claimed range with sufficient specificity to anticipate the claims. Sinor discloses that a large diameter bit is used and the specific examples of what a large diameters in the range of large diameter bits. Further, when the diameters were converted from mm to inches, they were rounded and not given exactly. Also, the specification gives no evidence of unexpected results within the claimed range. See MPEP 2131.03.

In regards to claim 7-8 and 15-16, the polycrystalline diamond cutter can alternatively be elliptical (Column 7, lines 16-21).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. If applicant disagrees with the rejection under 35 U.S.C. 102, Claims 1-2, 5-8 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinor in the alternative.

Art Unit: 3671

Sinor discloses a drill bit comprising:

- a bit body (12) with blades (14)
- polycrystalline diamond (Column 7, line 2) compact cutting element (160)
including a substrate and polycrystalline diamond layer (Fig. 4).

The interface between the substrate and polycrystalline diamond layer is non-planar (Fig.4). However, Sinor discloses the polycrystalline diamond compact cutting elements having a “relatively large diameter, such as 19 mm (\approx 0.75 inch) or 25 mm (\approx 1 inch).” (Column 7, line 14-16) instead of a range greater than 20 mm but less than 25 mm.

“A prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of “having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium” as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.)” See MPEP 2144.05.

It would have been obvious to one having ordinary skill in the art at the time the invention was made given the statement in Sinor that the cutting elements have a relatively large diameter, such as 19 mm or 25 mm, to make diameter greater than 20 mm but less than 25 mm. The statement in Sinor suggests that large diameter bit between 19 mm and 25 mm can be used.

In regards to claim 7-8 and 15-16, the polycrystalline diamond cutter can be elliptical (Column 7, lines 16-21).

Claims 3-4, 9-12 and 17-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinor.

Sinor discloses the claimed invention as described above and including an exposure. However, Sinor fails to disclose the polycrystalline diamond layer having a thickness between 0.140 inches and 0.240 inches or an exposure being 11 mm. The specification does not provide any criticality to the thickness of the polycrystalline diamond layer, or to the exposure. It merely states that these dimensions are not the common dimensions. Therefore, without any criticality disclosed in the specification, it would be obvious to one having ordinary skill in the art at the time the invention was made to make the polycrystalline diamond layer have a thickness between 0.140 inches and 0.240 inches or the exposure 11 mm.

Response to Arguments

7. Applicant's arguments filed 7/2/03.

Applicant argues 1) that the cutting elements in Sinor are not cylindrical 2) that the interface between the substrate and diamond layer is not non-planar and 3) that the cutting element in Sinor is a stub cutter.

In response to applicant's first argument, the cutting elements in Sinor are cylindrical. This is clearly seen in Figure 4A and Figure 4B.

In response to applicant's second argument, the interface is non-planar in Sinor. As shown clearly, in Figure 4b, the interface between the diamond layer (102) and the substrate (104) is non-planar.

Art Unit: 3671

In response to applicant's third argument, applicant's claims contain no limitations in regards to the type of cutting element.

Therefore, for the reasons given above, the claims remain rejected.

Conclusion

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meredith Petravick whose telephone number is 703-305-0047. The examiner can normally be reached on Monday-Thursday from 7:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will, can be reached at 703-308-3870.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is 703-305-1113. The fax number for this Group is 703-305-3597.



**Meredith Petravick
Patent Examiner
Group Art Unit 3671**

MCP
September 22, 2003